UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,319	12/20/2001	Richard Williams	TI-33323	8043

23494 7590 04/15/2005

TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER	
BAYARD, EMMANUEL	
ART UNIT	**PAPER NUMBER**
2631	

DATE MAILED: 04/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/026,319	WILLIAMS ET AL.	
	Examiner	Art Unit	
	Emmanuel Bayard	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 December 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/2/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-8, 13-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Zak U.S. Patent No 6,452,991 B1.

As per claim 1, Zak teaches a method for detecting the presence of a packet in a communications channel using multiple sampling rates, the method comprising: (a) sampling the communications channel at a first sampling rate, producing a sequence of samples (see figs. 4-6 elements 64, 84, 110 and col.8, lines 34-35 and col.10, lines 46-50 and col.12, lines 27-30); (b) correlating the sequence of samples (see figs.4-5 elements 66, 68, 86, 114 and col.8, lines 39-45 and col.10, lines 65-67 and col.12, lines 39-40); (c) comparing the correlation result with a threshold (see figs.4-6 elements 70, 72, 88, 92, 116 and col.8, lines 44-67 and col.11, lines 10-32 and col.12, lines 41-55); and (d) sampling the communications channel at a second sampling rate (see fig.5 element 100 col.4, lines 55-60 and col.7, lines 54-57 and col.11, lines 42-67 and col.12, lines 1-13) based on the result of the comparison.

As per claim 2, Zak teaches wherein the correlating step comprises correlating the sequence of samples with itself (see figs.4-6 and col.4, lines 33-67).

As per claim 3, Zak teaches wherein the correlating step comprises correlating the sequence of samples with a reference sequence of samples stored in a memory (see col.12, lines 41-45).

As per claim 4, Zak teaches, wherein the first sampling rate is sufficient to accurately keeping track is the same as the claimed (recover) (see col.11, lines 9-10) data encoded (col.6, line 42) in the packet.

As per claim 5, Zak teaches wherein the second sampling rate is greater than the first sampling rate (see col.4, lines 55-60).

As per claim 6, Zak inherently teaches wherein the second sampling rate is an integer multiple of the first sampling rate.

As per claim 7, Zak teaches wherein the second sampling rate is an integer multiple of a minimum sampling rate required to accurately keeping track is the same as the claimed (recover) (see col.11, lines 9-10) data encoded (col.6, line 42) in the packet.

As per claim 8, Zak teaches wherein the second sampling step occurs only if the correlation result exceeds the threshold (see col.4, lines 8-15).

As per claim 13, Zak inherently teaches wherein the correlation step is performed after a new sample is produced.

As per claim 14, Zak inherently teaches wherein the correlation step is performed after a specified number of new samples are produced.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zak U.S. Patent No 6,452,991 B1 in view of Simmons et al Pub No 2002/00940048 A1.

As per claims 9 and 12, Zak teaches all the features of the of the claimed invention including (f) processing any data encoded in the packet (col.6, line 42) in the packet; (g) repeating steps (a)-(d) (see fig.5 and col.11, lines 43-62) except e) decoding the packet.

Simmons teach decoding the packet (see page paragraph [0028] and page 6, paragraph [0072]).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Simmons into Zak as to accurately performing synchronization during the operation as taught by Simmons (see page 1, paragraph [003]).

As per claim 10, Zak and Simmons in combination would include wherein following the processing step, the method further comprising the step of changing the sampling rate back to the first sampling rate after the completion of

processing the packet as to accurately performing synchronization during the operation as taught by Simmons (see page 1, paragraph [003]).

As per claim 11, Zak and Simmons in combination would include wherein following the processing step, the method further comprising the step of stopping the processing of the packet and changing the sampling rate back to the first sampling rate after determining an erroneous detection of the packet as to accurately performing synchronization during the operation as taught by Simmons (see page 1, paragraph [003]).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zak U.S.Patent No 6,452,991 B1 in view of Simmons Pub No 2002/0094048 A1 and in further view of Doi et al U.S. Patent No 5,491,713.

As per claim 15, Zak teaches a receiver for a communications system comprising: an antenna or Radio frequency receiver is the same as the claimed (signal detector) (see fig.3 element 52 or 54), the signal detector containing circuitry to detect signals transmitted on a communications channel; a sampler (see figs. 3-6 elements 56 or 64, 84, 110 and col.8, lines 34-35 and col.10, lines 46-50 and col.12, lines 27-30) coupled to the signal detector, the sampler

containing circuitry to sample the signals detected on the communications channel by the signal detector at a variable sampling rate and produce a sequence of samples, wherein the sampler samples the communications channel at a first sampling rate when attempting to detect a packet and at a second sampling rate when a packet has been detected (see col.4, lines 55-60); a correlator coupled to the sampler, the correlator containing circuitry to compare samples in the sequence of samples and produce a correlation value based on the comparison(see figs.4-5 elements 66, 68, 86, 114 and col.8, lines 39-45 and col.10, lines 65-67 and col.12, lines 39-40); a processor (see fig.3 element 60) coupled to the correlator and the sampler, the processor containing circuitry to detect the presence of a packet based on results produced by the correlator.

However Zak does not teach a processor to decode and process data contained in a packet transmitted on the communications channel, and to control the sampling rate of the sampler.

Simmons teaches a processor to decode and process (see fig.2 element 38 and page 2 paragraphs [0028-0029] and page 6, paragraph [0072]) data contained in a packet transmitted on the communications channel, and to control the sampling rate of the sampler.

It would have been obvious to one of ordinary skill in the art to implement the teaching of Simmons into Zak as to accurately performing synchronization during the operation as taught by Simmons (see page 1, paragraph [003]).

Furthermore Zak and Simmons in combination do not teach wherein the sampler comprising: a latch coupled to the signal detector, the latch containing

circuitry to capture a signal value at a first input and produce a sample corresponding to the captured signal value at an output; and a sampling clock coupled to the latch and the processor, the sampling clock containing circuitry to control the sampling rate of the sampler based on control information from the processor.

Doi et al teaches a sampler comprising a latch (see fig.1 element 105) coupled to the signal detector (see fig.1 element 106), the latch containing circuitry to capture a signal value at a first input and produce a sample corresponding to the captured signal value at an output (see col.2, lines 65-67 and col.3, lines 1-3 and col.5, lines 10-11); and a sampling clock (see fig.1 element 107 and col.5, lines 7-15) coupled to the latch and the processor, the sampling clock containing circuitry to control the sampling rate of the sampler based on control information from the processor.

It would have been obvious to one of ordinary skill in the art to implement the teaching of Doi into Zak and Simmons as to control clock timing by detection of the deviation of the clock timing from a desired reference timing during both start-up and normal operations and using the result of the detection for applying feedback to the clock generator as taught by Doi (see col.1, lines 63-67).

As per claim16, Zak , Simmons and Doi in combination would teach, wherein the processor changes the sampling rate back to the first sampling rate after the completed reception of the packet as to control clock timing by detection of the deviation of the clock timing from a desired reference timing during both

start-up and normal operations and using the result of the detection for applying feedback to the clock generator as taught by Doi (see col.1, lines 63-67).

As per claim 17, Zak , Simmons and Doi in combination would teach wherein the processor changes the sampling rate back to the first sampling rate after the processor determines that the packet was destined for a different receiver as to control clock timing by detection of the deviation of the clock timing from a desired reference timing during both start-up and normal operations and using the result of the detection for applying feedback to the clock generator as taught by Doi (see col.1, lines 63-67).

As per claim 18, Zak, Simmons and Doi in combination would teach wherein the processor changes the sampling rate back to the first sampling rate after determining an erroneous detection of the packet as to control clock timing by detection of the deviation of the clock timing from a desired reference timing during both start-up and normal operations and using the result of the detection for applying feedback to the clock generator as taught by Doi (see col.1, lines 63-67).

As per claim 19, Zak teaches communications device comprising: base station (see fig.1 element 24 and col.5, lines 55-60) is the same as the claimed (transmitter) to transmit information from the communications device; base station (see fig.1 element 24 and col.5, lines 55-60) is the same as the claimed (receiver) to receive information sent to the communications device, the receiver comprising: an antenna or Radio frequency receiver is the same as the claimed (signal detector) (see fig.3 element 52 or 54), the signal detector containing

circuitry to detect signals transmitted on a communications channel; a sampler (see figs. 3-6 elements 56 or 64, 84, 110 and col.8, lines 34-35 and col.10, lines 46-50 and col.12, lines 27-30) coupled to the signal detector, the sampler containing circuitry to sample the signals detected on the communications channel by the signal detector at a variable sampling rate and produce a sequence of samples, wherein the sampler samples the communications channel at a first sampling rate when attempting to detect a packet and at a second sampling rate when a packet has been detected (see col.4, lines 55-60); a correlator coupled to the sampler, the correlator containing circuitry to compare samples in the sequence of samples and produce a correlation value based on the comparison(see figs.4-5 elements 66, 68, 86, 114 and col.8, lines 39-45 and col.10, lines 65-67 and col.12, lines 39-40); a processor (see fig.3 element 60) coupled to the correlator and the sampler, the processor containing circuitry to detect the presence of a packet based on results produced by the correlator.

However Zak does not teach a processor to decode and process data contained in a packet transmitted on the communications channel, and to control the sampling rate of the sampler.

Simmons teaches a processor to decode and process (see fig.2 element 38 and page 2 paragraphs [0028-0029] and page 6, paragraph [0072]) data contained in a packet transmitted on the communications channel, and to control the sampling rate of the sampler.

It would have been obvious to one of ordinary skill in the art to implement the teaching of Simmons into Zak as to accurately performing synchronization during the operation as taught by Simmons (see page 1, paragraph [003]).

Furthermore Zak and Simmons in combination do not teach wherein the sampler comprising: a latch coupled to the signal detector, the latch containing circuitry to capture a signal value at a first input and produce a sample corresponding to the captured signal value at an output; and a sampling clock coupled to the latch and the processor, the sampling clock containing circuitry to control the sampling rate of the sampler based on control information from the processor.

Doi et al teaches a sampler comprising a latch (see fig.1 element 105) coupled to the signal detector (see fig.1 element 106), the latch containing circuitry to capture a signal value at a first input and produce a sample corresponding to the captured signal value at an output (see col.2, lines 65-67 and col.3, lines 1-3 and col.5, lines 10-11); and a sampling clock (see fig.1 element 107 and col.5, lines 7-15) coupled to the latch and the processor, the sampling clock containing circuitry to control the sampling rate of the sampler based on control information from the processor.

It would have been obvious to one of ordinary skill in the art to implement the teaching of Doi into Zak and Simmons as to control clock timing by detection of the deviation of the clock timing from a desired reference timing during both start-up and normal operations and using the result of the detection for applying feedback to the clock generator as taught by Doi (see col.1, lines 63-67).

As per claim 20, Zak, Simmons and Doi in combination would teach wherein the signal detector is a sensor capable of detecting wirelessly transmitted signals as to accurately performing synchronization during the operation.

As per claim 21, Zak, Simmons and Doi in combination would teach wherein the signal detector is a sensor capable of detecting signals transmitted on a wire-line communications channel as to accurately performing synchronization during the operation.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Rivin et al U.S. Patent No 6,718,286 B2 teaches a non-intrusive application code.

Kasapidis Pub No 2002/0019239 A1 teaches a cellular telecommunications network.

Rabii U.S. Patent No 6,744,826 B2 teaches an AGC window detector.

Kwok et al U.S. patent no 5,491,713 teach a minimized over-sampling.

Li et al Pub No 2003/0215022 A1 teaches OFDM detection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Emmanuel Bayard
Primary Examiner
Art Unit 2631

4/6/05

EMMANUEL BAYARD
PRIMARY EXAMINER